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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,359	12/01/2003	Carlambrogio Bianchi	60246-306;10766	1318

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EXAMINER	
DUONG, THO V	

ART UNIT	PAPER NUMBER
3743	

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/725,359	BIANCHI ET AL.	
	Examiner	Art Unit	
	Tho v. Duong	3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6,9,10,13-17 and 20-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6,9,10,13-17 and 20-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicant's amendment filed 7/11/2005 is acknowledged. Claims 1-4,6,9-10,13-17 and 20-25 are pending.

Response to Arguments

Applicant's arguments filed 7/11/2005 have been fully considered but they are not persuasive. Applicant's argument that the secondary reference to Sullivan teach a non-straight flow path instead of a straight flow path, which will ruin a benefit of Martin, has been very carefully considered but is not deemed to be persuasive since reference to Sullivan was relied only to teach a number of fans that can be used in a heat exchanger and not the structure of system or the structure of fan. Furthermore, in response to applicant's argument that Martin does not appear to be able to contain two fans, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the combined teachings of Martin and Sullivan would have suggested to one of ordinary skill in the art to use more than one fan in the heat exchanger system for a purpose of increasing the amount of air flowing over the coil. Furthermore, clearly the number of fans can be used in a heat exchanger system does not involve any inventive step since applicant does not disclose any criticality or unexpected result for having two fans. In fact, a heat exchanger system equipped with two fans is well known in the art and can be found in both applicant's admitted prior art (figure 1) and Sullivan's reference. The number of fans can be used in a heat exchanger system

is just a design consideration since it is a common knowledge that two fans can generate more air than one fan. However, the cost of operating two fans is higher than that of one fan. Therefore, the selection of two fans or more over one fan is just a design consideration between cost and capacity.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4,6,9-10,13-17 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin, Sr. (US 5,284,027) in view of Sullivan (US 5,195,332). Martin discloses (figures 2,3,18 and column 6, line 51- column 7, line 30) a ducted heating and cooling unit comprising at least one fan (12); a V-shaped bent coil (120) disposed in the downstream direction from the fan; the bent coil having a coil surface through which outlet air is discharged in a first direction and a second different direction (air exits at side openings 106); a duct (102,130) housing the fan and the bent coil; a separation wall (132) having an opening disposed between the fan and the bent coil for allowing air flowing toward the coil; the duct includes at least one side opening (106) substantially aligned with the second direction (arrow shown air exiting the duct). As regarding claim 2, the direction of air exiting outlet (108) at end of the duct is considered to be a first direction, which is longitudinal and the direction of air exiting outlet (108) at two side of the ducts is considered to be a second direction which is at an angle with respect to the first direction. As regarding the limitation of the vertical fins, Martin discloses

(figures 3 and 13) a plurality of fins (104 or 444) formed in the bent coil to direct the outlet air substantially perpendicular to the coil surface and diverting the outlet air into different directions. Martin does not disclose that there are two fans blowing the air over the coils. Sullivan discloses (figure 1 and column 3, lines 57-68) a cooling system that has two fans (15) installed in the system for the purpose of increasing the quantity of unconditioned air flowing over a heat exchanger coil (12). Since Martin and Sullivan are both from the same field of endeavor and/or analogous art, it would have been obvious to one having ordinary skill in the art, at the time the invention was made to use Sullivan's teaching in Martin's device for the purpose of increasing the quantity of unconditioned air flowing over a heat exchanger coil. Regarding claims 13 and 14, applicant has not disclosed that having the coil in C-shaped would solve any stated problem or is for any particular purpose that the V-shaped coil would have not. Moreover, it appears that the coil would perform equally well with the either the shape of coil is C or V shape (page 3, paragraph 13, in the specification). Accordingly, the shape of the coils is deemed to be a design consideration, which fails to patentably distinguish over the prior art of Martin.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin and Sullivan as applied to claims 1 and 6 above, and further in view of Ikeya (US 5,482,115) or Nagakura (US 5,174,366). Martin and Sullivan substantially disclose all of applicant's claimed invention as discussed above except of the limitation that the coil includes a plurality of tubes that are aligned vertically and staggered horizontally. Both Ikeya (figure 1) and Nagakura (figures 1-3) disclose a heat exchanger that has a coil including a plurality of tubes that are aligned vertically and staggered horizontally for the purpose of improving the heat exchanging performing of the heat exchanger. It would have been obvious to one having ordinary skill in the

art at the time the invention was made to use either one teaching of Ikeya or Nagakura in the combination device of Martin and Sullivan for the purpose of improving the heat exchanging performance of the heat exchanger.

Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin and Sullivan as applied to claims 1 and 6 above, and further in view of Vandervaart (US 5,189,887). Martin and Sullivan substantially disclose all of applicant's claimed invention as discussed above except for the limitation that the fins are aluminum. Vandervaar discloses (figure 1) a heat exchanger used in a furnace that coil (24,25) attached with fins (27) wherein fins (27) is selected to be aluminum for a purpose of enhancing the heat transfer of the coil and maintaining the low cost of the heat exchanger since aluminum is known in the art to have high heat transfer coefficient and relative low cost when compared to other high heat transfer material. Since Vandevaar and Martin are both from the same field of endeavor and/or analogous art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use Vandevaar's teaching in Martin's device for a purpose of enhancing the heat transfer of the coil and maintaining the low cost of the heat exchanger since aluminum is known in the art to have high heat transfer coefficient and relative low cost when compared to other high heat transfer material.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sweedyk (US 4,557,249) discloses a compact furnace that has aluminum fins and copper tubes.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F (first Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennet can be reached on 571-272-4791. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tho v Duong
Primary Examiner
Art Unit 3743

TD
September 13, 2005